

# CRYOGENIC COOLING SYSTEM AND METHOD WITH COLD STORAGE DEVICE

## Abstract

A cooling system for providing cryogenic cooling fluid to an apparatus comprises a re-circulation device, a passive cold storage device having a porous matrix of material which directly contacts the cryogenic cooling fluid as the cryogenic cooling fluid passes through the passive cold storage device, a first portion of a fluid communication feed line fluidly connecting the re-circulation device to the passive cold storage device, a second portion of a fluid communication feed line fluidly connecting the passive cold storage device to the apparatus for communicating cryogenic cooling fluid to the apparatus, and a fluid communication return line fluidly connecting the apparatus to the re-circulation device. The passive cold storage device may comprise a regenerative heat exchanger including a porous matrix of metal wire mesh, metal spheres or ceramic spheres.